INTRODUCTION

Group B Streptococcus (GBS) is a dangerous infection affecting 1 in 1,750 infants, causing around 40 neonatal deaths annually. GBS is often found in the rectum or vagina of 28% of women. Although typically harmless, it can harm newborns if transmitted during birth, leading to conditions like meningitis, sepsis, pneumonia, and even death. Screening for GBS in pregnancy is vital, allowing intravenous antibiotics during labour to reduce transmission risk.

Efficient GBS screening in clinical labs can benefit from an external quality assessment (EQA) scheme. Standardised testing and EQA participation are crucial to prevent neonatal GBS infections, ensure accurate diagnoses, and maintain patient trust in healthcare.

Lyophilisation, or freeze-drying, preserves sample structure by removing water through freezing and vacuum sublimation. This method ensures consistency in EQA samples, offering reliable and stable results. For clinical labs, swabs are common samples, and selecting a similar transport medium minimises bias and represents real lab testing accurately.

AIM

To establish the need for a new EQA scheme focused on Group B Strep, S. agalactiae. This scheme will test participants' ability to detect GBS presence in a simulated sample. To identify the ideal transport medium to use for a GBS EQA by determining the viability of transport mediums using clinical diagnostic methods.

KEYWORDS

Group B Screening, Streptococcus Agalactiae, EQA, External Quality Assessment, Pregnant Women

RESULTS

Out of 129 responding laboratories, 103 actively screen for GBS, and 78 of them were willing to participate in an EQA scheme for detecting Group B Streptococcus in simulated gestating patient samples. Among the respondents, the most common sample media received were Liquid Amies Transwab (35.7%) and Charcoal Amies Transport swabs (23.3%).

DISCUSSION

Participants in GE and GB schemes received a questionnaire as they have the necessary testing facilities for S. agalactiae. With over 50% of respondents expressing interest in an EQA scheme for detecting GBS in swabs, there is a clear demand. Notably, there’s currently no accredited GBS screening EQA in the UK.

Amies Charcoal swabs are commonly used for clinical sample collection and transport. They contain nutrients like amino acids, salts, and carbohydrates, prolonging bacteria viability during transport (Zhang et al., 2007). Liquid Amies swabs serve a similar purpose, providing a moist environment for swabs collected from sites like the vagina-rectal area.

When examining GBS growth over 8 weeks on CBA and CNA agar, Amies Charcoal swabs stored at 4°C showed the most significant growth compared to lyophilized samples (Table 1). At room temperature, growth in Amies Charcoal swabs was consistently lower by at least one log compared to lyophilized samples or swabs stored at 4°C.

CONCLUSION

This study demonstrated that charcoal swabs are a viable transport medium for GBS samples, which is useful for developing a new EQA scheme. The pilot study will provide further insights into the use of these sample types and enable the development of an effective EQA scheme for GBS screening during pregnancy.

This study strongly suggests that there is a need for the introduction of an EQA scheme for GBS, due to the high number of participants that have shown an interest in participating in this scheme. The introduction of this scheme could lead to an improved reliability of testing and detection of GBS in samples which could ultimately lead to a reduced number of neonatal illnesses or deaths.

ACKNOWLEDGEMENTS

Special thanks to the UK NEQAS for Microbiology – Bacteriology team for their contribution towards the development of this EQA. Thank you also to the laboratories that participated in the pre-pilot survey.

REFERENCES


Chambers ST, Peddie BA, Frampton C, & Kieffer P. (2009). Preservation of microbial isolates using freeze-drying. UK NEQAS Novel EQA. 109 Laboratory replies. 60% of respondents were interested in a new EQA scheme for the detection of Group B Streptococcus, if one was available.

Participant Response to GBS EQA scheme participation

Participant Response to GBS EQA scheme participation.

Table 1 above shows p-values from S. agalactiae CFU values in liquid Amies and Charcoal swabs compared with freeze-dried specimens. Values above 0.05 show there is no significant difference between the two mediums, whereas a value below 0.05 is seen as a significant difference.

Average Growth of S. agalactiae on Colombia Blood Agar, in three different transport mediums, over the span of 8 weeks

Average Growth of S. agalactiae on Colombia Blood Agar, in three different transport mediums, over the span of 8 weeks.

<table>
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<tr>
<th>Transport Media</th>
<th>FD – RT Liquid</th>
<th>FD -4°C Liquid</th>
<th>FD – RT Charcoal</th>
<th>FD – -4°C Charcoal</th>
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</tbody>
</table>

Figure 1 diagram showing how media agar is quantified for reading when the plate is streaked for single colonies. Value is recovered using LIM broth: Amies Vicose Clear Gel – dried/lyophilised and Eswab – liquid transport media. Group B Screening, Streptococcus Agalactiae, EQA, External Quality Assessment, Pregnant Women.

UK NEQAS Novel EQA in Development – Group B Streptococcus Screening
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